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MONTHLY REPORT OF THE OFFICES OF FOREST EXPERIMENT STATIONS AND DENDROLOGY

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MONTHLY REPORT
OFFICES OF FOREST EXPERIMENT STATIONS AND DENDROLOGY
November, 1924

Foreword

"Administration is still one of the large factors in connection with the success of an experiment station. It has a place of no secondary importance to play in the constructive planning of the station's course and the effective conduct of various grades and types of activity. In the last analysis it is largely responsible for the direction of the station resources along most profitable channels. The only question then is whether this guidance and supervision of station affairs is ample, and whether these functions are being as fully exercised as they may profitably be.

"Administration need not interfere with the proper functions of technical workers. It may serve as a stimulus, at times it may impose restraint, but it exercises a steadying hand and it preserves the main idea of the station, for the purpose of organization and administration is to secure the most effective employment of the force and resources of the station. The object is not the direction of the investigations in the sense of supervision, dictation or interference with their orderly conduct, but it may properly concern itself with their course and progress in order to determine their needs intelligently and the extent to which support is justified, and it should look ahead to prepare for further developments.

"Administration is warranted only in so far as it serves a useful end, but experience has shown that it has a sound basis for an active existence. It is its business to preserve the objects and aims of the station, to keep matters moving in the various activities in an orderly and active way, to stimulate and encourage, to sustain and protect, and to counsel and suggest where necessary.

"The maintenance of a watchful, even a jealous, eye on the station can only serve to strengthen it and give it a position of greater prominence. It needs representation before the public and to have the things done for it which apply to its organization, but after these things have been done the greatest chance for benefit lies within itself.

"The whole objective of the experiment station is intelligence. Its method has been likened to prospecting - prospecting for intelligence. The course in a particular line may prove to be a straight and easy one, or it may turn out to be a tortuous and difficult one, with unforeseen obstacles and frequent disappointments. Someone must exercise a patient and appreciative but no less a critical attitude toward these operations, or there may be vacillation, a marking of time, and wasted effort. There is a tendency to undertake more things than can be carried out with the means at hand, for the enthusiasm of individual workers is prone to underestimate difficulties and the necessary expense is likely to lead far beyond that anticipated.

There is danger also of an accumulation of undertakings which have fallen into the routine stage and have ceased to be productive toward conclusion. As a whole, the work of a station in such a case is not upon the high plane it should be striven to place it.

"The director of a station cannot be expected to be an expert in all the phases of the station work, but he can know something about them and the elements essential to their success, and eventually he can form a judgment as to how far these are being met. He can, however, and should be familiar with the problems and their relative importance, even though he must rely upon others to carry them out. In the less technical conventional methods which apply to so large a part of the station work he may claim considerable judgment regarding their competence to advance beyond a certain point, and their adequacy to meet expectations at the present stage. In the more advanced lines of inquiry he can see that these are properly aimed and well considered at the outset, that the work under them is constructive and not simply routine, and that they are being held to their general purpose and fit into the general plan of work for the station. Occasionally he may be called upon to determine when that purpose has been attained, for the disposition to wander and to follow suggestion from one field over into another delays conclusion after it has been reached, and projects the inquiry far beyond its original field.

"With such intimate contact and study the director may hold the station well within its resources and along well considered lines, and he may be able to turn some long-standing projects in the direction of progress or toward an early conclusion. In this way he may perhaps be able to stop some leaks, or by eliminating expensive overhead in connection with operations which have become largely routine he may conserve resources and give larger opportunity where needed."

(From an address to the Association of Land Grant Colleges in 1923 by Director of Scientific Work, E. B. Ball.)

FOREST EXPERIMENT STATIONS

Washington

One of the more interesting and important events during the month was the Wood Utilization Conference which was held in Washington the 19th and 20th. At this time representatives of nearly all the wood-using industries were present, as well as many foresters. It was a significant thing that though primarily dealing with wood waste and the means by which wood waste in industry could be prevented, the major part of the discussions in general were upon timber growing and timber production. Although the forest experiment station plan was not mentioned in the discussions, it was specifically touched upon in the speech of the President at the opening address of the conference, and also in the report of the committee which was unanimously adopted. It is quite interesting to note that in the mind of the general public wood waste prevention and timber growing go hand in hand as a means of staving off the wood famine that already is being felt in the form of high prices for lumber products in the East. That timber growing came up

so markedly is an indication that the production of wood is recognized as the first step in a program for a national forest policy. The general account of this meeting has been published in the various trade journals, and it is understood that the entire conference report will be published.

The forest experiment station idea is one of concentration and centralization in so far that the men at the station are kept in fairly close contact, through the establishment of a permanent headquarters where all the men may keep in touch, not alone with their work, but with people in other fields of scientific activity. The most recent instances of how the realization that for effective work it is necessary for the men to have the stimulus which comes from contacts with each other and with those interested in their problems, is shown in the recent action of the Division of Forest Insects. The Western Division of Forest Insects has been established at Palo Alto, California, and through the generosity of Stanford University, is located in intimate contact with that institution. Eight or nine entomologists will now have their headquarters there. The activities of this station will serve the region represented by California, the southern half of District 6, and all of Districts 3 and 4. Two of the field stations affected by this consolidation will be continued as substations. These are the ones located at Northfork, Calif., and Ashland, Ore.

During the month the southern pine growth study continued to engross the attention of the Computing Section and 42 per cent of the total time was devoted to that. In addition, the office undertook what seemed at first a relatively simple job for the Northeastern Station in coding the fire reports for Massachusetts for 1923. This, however, turned out to be much more of an undertaking than at first realized, and consequently has interfered considerably with getting out some of the other work. Additional work consisted of placing the southern pine price study on punch cards instead of tabulation sheets, with a great saving of time. A small amount of work was also done upon the regional western yellow pine volume table.

The work in the Office of Forest Statistics has been very greatly crowded because of the preparation of last year's pro rata sheets for Section 8 of the Road Act. It has been necessary in this to work out the value of the resources in each one of the National Forests on both State and county subdivisions. This has necessitated a lot of computations and it has been necessary to drop many other activities in order to concentrate on this one.

During November the library loaned 834 books and periodicals, and 109 members of the Service and others consulted the library in person. The number of books and articles indexed last month was 241.

EDITOR'S OFFICE

The request in last month's Report for illustrations that illustrate is worthy of additional emphasis. Anyone looking back through published bulletins (not his own) can see this for himself. There are any number of half tones that are simply breaks in the solid type - that is all that can be said for them. One sees a certain amount of smudgy verdure, perhaps a slope in the background that may or may not be timber clad, little distinction

otherwise between foreground and background, and one is told in fine type underneath that this represents any number of things. One learns that he is looking at two or three distinct species of brush, with perhaps much reproduction coming up through it, and that the patch in the left background (discernible as a slightly lighter smudge) is a very important area of something-or-other else.

It may be that all of these things were crystal clear in the original photograph and that the smudge is the fell contribution of the printer. But probably they were not. The probability is that the author took a few photographs of the area in the general vague hope that one would be good, and that he then pored over the best one, was able because of his familiarity with the location to distinguish all of these things he mentions, and so proceeded to tell the waiting world that they were there. He forgot that his reader almost invariably hails from Missouri. Not only does the reader demand to be shown; he will in all probability be expecting the illustrations in this bulletin to tell him the whole story graphically, without too much attention to fine-print titles underneath. Given sufficient pictorial entertainment, he may turn to the summary or the preface to see what it is all about.

Much praise may be given the bulletin that tells a three-fold story, once in concise, comprehensive introduction and conclusion, once in detail in the text, and once again in pictures or in diagrams. If a projected bulletin appears to lend itself to illustration with photographs, the author who is earnestly desirous of carrying out a well-rounded piece of work of practical and permanent value will give as conscientious attention to the necessary photography as to the laying out of sample plots, and he will begin at the beginning. Instead of looking over the District or Station morgue, he will take his own pictures, and according to a carefully worked out plan. They will include panoramas, "befores" and "afters," close-ups, the use of a portrait lens, or even a microscope lens. They will not be merely "views," but pictures that actually show to him who runs the particular fact or feature that the author wants to illustrate.

The camera will not tell the truth unaided. It may be necessary to distort considerably the object photographed, in order to obtain a true picture.

Another important thing which the thoroughgoing author will keep in mind is that photographs are not necessarily as desirable as drawings. In a manuscript recently reviewed, loss of value in an abruptly tapered log because of a greatly reduced small-end diameter was originally illustrated by a photograph, in which the reader was required to pick such a log out of a small pile of logs in the middle distance. In the revised manuscript this was greatly improved by a line drawing of a single log showing unmistakably the abrupt taper, the length of the log faultily cut, the two feet shorter cut that would increase volume, etc. The barest title sufficed to recall to the reader the application of the Doyle rule and to point the moral.

It is with this sort of illustration that the camera must compete. If photographs are preferred, they must justify this preference. Neither should be used unless they literally "il-lus-trate" the text; that is, let light into the text.

LAKE STATES FOREST EXPERIMENT STATION

Aside from working up the field data on the principal projects of the station, the outstanding activities during the month are as follows:

Kittredge, with Dr. F. J. Alway and Mr. McMiller of the Division of Soils of the University, made a field examination of the forests and soils of Star Island in Cass Lake within the Minnesota National Forest. The purpose of the field examination was to correlate forest growth with the different types of soil found on Star Island. Dr. Alway made an intensive examination of the soil types on the island and took samples for laboratory analysis. On each soil type, a one-fourth acre sample plot was laid out and the timber measured to secure figures of growth and yield. The best soil, Marquette sand, with a sandy clay subsoil, had a growth of basswood-maple-elm 60 years old with a mean annual increment of 70 cubic feet; the next best had a white-Norway pine type 250 years old, with a volume of 83,000 board feet per acre, one-half white pine and one-half Norway. The poorer soil, Cass Lake fine sand, had Norway pine 200 years old, with a gross volumeof 82,000 board feet per acre. On the same soil, jack pine 100 years old, beginning to go to pieces, still had a volume of 27,000 board feet per acre gross. It was, therefore, shown that there is a close correlation between the types of soil and the forest growth on Star Island. The results of this examination will appear in the soil survey of the county and may furnish material for an article.

Mitchell returned from Michigan where he has been the past two months compiling data for the fire statistics study. All available material in the offices of the State Forester, State Firewarden, and National Forest Supervisor back to 1915 was reviewed and cards were punched for all fires for which there was sufficient data, some 4,000 fires in all. In addition, the preliminary work of spotting on maps by size and cause the fires for which the location was known was completed. In this work he had the help of two assistants, forest school graduates, paid by the Department of Conservation. Unfortunately, the original fire reports, submitted to the State Firewarden, had been destroyed except for 1920 and 1923, although more or less detailed summaries are available for other years. This reduces materially the value and completeness of the conclusions that can be drawn at this time. Sufficient material, however, has been secured for making the report. This, Mitchell is now engaged in working up.

While at Lansing, Mitchell attended the annual meeting of the Ohio Valley Section of the Society of American Foresters, October 16-18, at Madison, Indiana. Since the Ohio Valley Section includes Michigan, it was thought desirable to have a representative from the station at the meeting and get a line on the problems as viewed by the foresters of the region. Mitchell reports:

"The annual meeting of the Ohio Valley Section, which includes Illinois, Indiana, Ohio and southern Michigan, was held this year at Clifty Falls, a State park near Madison, Indiana. About twenty members attended, Michigan, Ohio and Indiana being represented. While small, the meeting was very much worth while, owing to the interest of those present and the opportunity afforded to view at first hand southern Indiana conditions and the results of ten years' experimental forestry effort.

"Friday was spent going over the various projects under way on what is known as the Clark County State Forest. This tract, purchased in 1903, consists of some 2800 acres near Henryville, Indiana, established to determine the best methods of handling Indiana woodlands and of reforesting denuded areas. It consisted originally of cut and culled over woodland and worn-out fields, conditions typical of southern Indiana. Since 1904, when planting started, nearly 100 plots aggregatingbout 175 acres, have been established to demonstrate various methods of sowing, planting, thinning, pruning, etc. In all, 23 species, mostly hardwoods, have been used with varying degrees of success. In addition, 26 acres of native woodland have been set aside for experimental purposes and 7 acres for a forest park. In the latter, an arboretum of native trees and shrubs and suitable exotics is being established.

"The Chairman of the State Conservation Commission spoke, outlining the accomplishments of the State along conservation lines and the future policy of the Commission. I spoke of the work of the Lake States Station and discussed our fire protection studies. The State Foresters of Ohio and Indiana outlined their problems and accomplishments. It was suggested that a committee be appointed to arrange for the preparation of a type classification covering the central hardwood region. The sentiment was also expressed that a Federal Forest Experiment Station should be established eventually in the central hardwood region to work with the States on their problems.

"A trip was made through Clifty Falls State Park and a number of woodlots listed as cooperative forests under the Indiana forest land tax exemption act were visited. One of these, a tract cut over some forty years ago, has to-day a fine stand of merchantable hardwood, said to average 30,000 board feet per acre. It was to stimulate effort along this line that the forest tax exemption law, which fixes the assessment at $1 per acre, was passed. Considerable advantage has been taken of this law to date, a trained forester being employed by the Conservation Department almost exclusively on the examination of tracts offered for listing under this act."

Dr. J. Arthur Harris, the newly-appointed head of the Department of Botany at the University of Minnesota, has suggested a cooperative piece of work in revising the publication entitled "The Trees and Shrubs of Minnesota," issued some years ago by Clements, Rosendahl and Butters, and now out of print. There are considerable inquiries for this kind of publication. The plan is, in revising this book, to make it valuable not merely to amateurs but to those who are interested in the problems of our forests. The pamphlet in its present form is largely a taxonomic key to the trees and shrubs of Minnesota. The plan is to include illustrations, range, and, especially, some of the life history

at least of the principal forest trees. It will, therefore, be of distinct value to cooperate with the Department of Botany in bringing out such a publication. In the process of revision, the experience of the members of the Station staff, as well as Professors Rosendahl and Butters, may add to the known tree range extensions of several forest trees, which would be of value to Mr. Sudworth.

Zon attended a conference of the Northern Hemlock and Hardwood Manufacturers Association held November 25 at the Pfister Hotel, Milwaukee, Wisconsin. He gave a paper on The Problem of the Cut-Overs. As the result, a resolution was adopted to appoint a committee to cooperate with the U. S. Forest Service in providing land for experimental purposes for the Station and to work out a plan for advancing the acquisition of land for National Forest purposes in the Lake States.

The membership of the Northern Hemlock and Hardwood Manufacturers Association owns a large area of cut-over land. It was thought that if the association as a body would undertake to block out several large area of land, say from 50,000 to 100,000 acres in extent, and offer them to the Government for National Forest purposes, either free or at a nominal price, the acquisition program as advocated by the American Forestry Association would be greatly advanced.

The establishment of National Forests in the Lake States region is one of the means of solving the problem of cut-over land. With the Government establishing National Forests and the States conducting large-scale reforestation work, the way would be paved for the rehabilitation of the cut-over region and land settlement on the better agricultural lands would be made more feasible.

It is a movement which should attract the attention of the owners of the cut-over land and friends of forestry and of large business and manufacturing interests centering in Chicago. The Lake States are the great hinterland for Chicago; its growth and prosperity is interwoven with the development of that region.

On November 7 and 8 a conference was held at the Station on the policy of land acquisition for the Lake States. Besides the members of the station there were present at the conference Associate Forester E. A. Sherman, Forest Supervisor R. G. Shreck, and C. A. Hoar.

CLOQUET FOREST EXPERIMENT STATION

At the Cloquet Station, the checking of field plantings was completed, plans for the winter cut of logs were made, some additional studies in the swamps were undertaken, and seed extraction was begun in earnest. The winter cutting provides for the removal of some 88,000 board feet of Norway, jack and some white pine and 100 cords of pulp wood and firewood, with estimated gross receipts of some $2,500.

The timber is to be removed from two forties and constitutes an improvement and selection cutting. One of these forties has a scattering stand of mature white and Norway pine mixed with overmature jack pine. Nearly all of the overmature jack pine and the defective Norway and white pine are to be removed. The other forty is covered largely with a stand of jack pine of two age classes, an overmature scattering stand about 100 years old mixed with a thrifty stand about fifty years old. The plans call for the removal of all the overmature jack, except in the more exposed parts of the area where only the dead and very defective trees will be removed.

Since the soil on both of these forties is rather heavy, there is some danger of having a growth of hazel brush come in as the result of opening up the forest. The only alternative, however, is allowing the stand to open gradually through the dying out of jack pine and to have windfalls and brush to combat. It was decided to harvest the overmature crop and have some return from the crop. Inasmuch as this was a good seed year for both white and Norway pine, the chances for getting natural reproduction after cutting are very good, especially since the area was largely burned over last fall.

All dead and down material will be salvaged and used either as logs or firewood. Jack pine tops will be used for pulp down to 4 inches and below that for firewood. All brush will be burned as made. There is a splendid market for every kind of material that the station can cut.

The overstory of mature jack pine was removed from a white pine underplanting made in 1913. A small portion of the stand was left in order that the effect of removing the stand might be observed. Two one-tenth acre plots were established, all the white pine being measured and numbered.

In connection with the study of the swamps, borings were made in the swamp soil where it is proposed to study the effect of the removal of excess water. This swamp is one-half mile long and varies in width from one-eighth to nearly one-fourth mile. Several different cover types are found in this swamp, varying from fairly thrifty black spruce in the lower end to open muskeg and grass swamp in the upper end. With the instruments available it was impossible to reach mineral soil in the lower end of the swamp, the muck being over 6 feet deep. In the open muskeg sand was reached at 4 feet, and in the grass slough it was reached at 2 feet. This is the reverse of what would be generally expected. Apparently, the effect of the removal of excess water upon timber growth will have to be determined practically for almost every individual swamp, or the swamps will have to be classified according to the peat formation in them before decisive results may be expected.

The seed extraction plant has been running night and day. To date about 300 pounds of Norway pine seed has been extracted and cleaned. The first week in December should see almost the end of seed extracting. The seed is largely the property of the State forest service and some individuals for whom the station has extracted the seed at cost, plus 10 per cent.

NORTHEASTERN FOREST EXPERIMENT STATION

Behre and Westveld both returned to the office for the winter early in the month. Since then they have been busy working up results.

Behre, Meyer and Stickel made a short trip to Bennington, Vermont, to secure some additional spruce yield plots from a rather extensive area of second-growth spruce to which attention had been called by the Finch-Pruyn Company.

Dana spoke at the annual meeting of the Empire State Forest Products Association at Utica, New York, on November 13, in connection with which he made a flying visit to the New York State College of Forestry. Through the assistance of the Washington office, some progress has been made in transferring records of forest fires in Massachusetts to punch cards preparatory to making some statistical studies in this field.

Peirson reached Amherst the latter part of the month for a several weeks detail to correlate his work with that of other members of the staff.

Field Assistant Stickel was given a probational appointment as Junior Forester, effective November 12; while Field Assistant Wilson left the latter part of the month for some private work with Edward Richards, Consulting Forester.

FREMONT EXPERIMENT STATION

November Activities

Field work at the station was completed the middle of the month, since which time both Roeser and Bates have been in the Colorado Springs office. The final work at the station had largely to do with preparations for continuation of the transpiration tests (T-7) next year, and with the unpotting of seedlings and measurement of growth in the current series of soil tests (T-5).

Some time was also spent by Roeser in preparing tags for the Pike thinning project (Mt-7) and in mapping timber in the local management project (M-1). It is hoped that some kind of a summary on the latter can be made this winter, showing the progress made toward a complete record of the station forest.

Since the middle of the month both Roeser and Bates have been compiling permanent plot data collected the past season, with Roeser also compiling the data for the season's transpiration tests. However, not much can be reported on the latter, as the seedling weight and growth figures will not be available until next spring.

December Plans

For the present, the compilation of growth data in connection with the permanent sample plots, and any other data which may contribute to the general subject of growth in the Rocky Mountain region, will receive the major attentions. Other subjects will naturally intrude to some extent, and before the

end of December the investigative program must be shaped. Nevertheless, very considerable progress is expected to be made toward the growth study bulletin in this month, and the effort will be continued until finished. Meantime it is expected that some of the increment-borer studies conducted by the Forests the past season will come in for review and checking, and that some information of value will be obtained therefrom.

About the middle of December, Roeser will assist officers of the Pike in tagging the Douglas fir thinning plots which were laid out several years ago, supplemental to the station project Mt-7. With the completion of this job, practically every plot in the District will have been brought up to the D-2 standard.

DISTRICT 5 - CALIFORNIA DISTRICT

Show's time during November was spent exclusively on the Board of Fire Review. The field work of the board was concluded about the middle of the month, and following that about two weeks were spent in winding up the voluminous material collected in the preparation of the report.

Dunning's time was spent in office work on the sample plots he measured during the field season.

Mr. R. W. Ayres was detailed to the office of Research for the winter months and his first work is in analyzing the volume table material collected during the past season and in preparing new volume tables for District use.

PRIEST RIVER EXPERIMENT STATION

The remeasurement of the eight thinning plots at the Priest River field station, upon which Weidman, Haig, and Kempff were engaged at the beginning of the month, extended well into November. The usual favorable weather of October and early November was depended upon in planning this work. This year, however, the weather turned out bad, with rain or snow for days on end. Field work on the plots was possible only at intervals. Although Weidman and Haig returned to Missoula November 15, there still remained a few days of field work on the project for Kempff.

To get an idea of subsequent reproduction on yellow pine cut-over areas in this region, several days were spent on an area in northern Idaho near the town of Blanchard. A broadcast burn occurred on this area at the time of cutting 16 years ago. Except for some favorably situated advance reproduction here and there, most of the reproduction on the ground at the time was destroyed. Fire was not severe enough, however, to kill the seed trees. The present open cover of reproduction amounts to 335 subsequent seedlings and 96 advance seedlings per acre. It is interesting to study the relation of the reproduction to the seed trees on the ground. The area on which the strip was run contains eight trees per acre, which are now 12" to 20" d.b.h. At the time of cutting these trees were approximately 10" to 17" d.b.h.

In this connection a brief cone study was made on several yellow pine cut-over areas in which the old cones under about 200 trees, from 8" to 20" in diameter, were tallied. It was found that but a very negligible number of cones had been produced by trees 10" and under. In this diameter class, 56 trees were examined, and of these 90 per cent showed none or less than 50 old cones per tree on the ground. Forty per cent of this class, in fact, showed no evidence of having produced cones at all. In the 14" diameter class, 60 per cent of the trees showed less than 50 old cones per tree on the ground, and 40 per cent showed from 100 to 800 cones. In the 18" class, 25 per cent of the trees contained less than 50 old cones per tree, and 75 per cent between 600 and 1,000 cones. The old cones on the ground, of course, are the remains of several seed crops. They also represent the surplus left by squirrels. Despite this, the relative number of old cones under trees of various sizes gives a fair indication of their effectiveness as seed producers and progenitors of a second crop of timber.

In the office at Missoula, Gisborne has been engaged on his main fire studies report. This is now being typed in the form of a first draft, with the ultimate view of publication as a circular. Gisborne has also prepared this month an article, "Use of Weather Forecasts in Predicting Fire Danger," which it is planned to submit for publication to the Monthly Weather Review.

Since his return to the office, Haig has been occupied with yield computations, and also with the preparation of a preliminary report on a short study of the increased growth of retained western white pine trees in timber sales.

Wahlenberg made his last field examinations of the season this month and conducted laboratory work in connection with stock planted in October. His annual seed testing work was started November 20. A compilation of data in connection with several reports was begun.

In addition to the remeasurement of the thinning plots, Kampff was engaged in timber sale marking and maintenance work at the Priest River field station. Considerable time was taken up with dismantling the Benton Creek road camp, repairing the water supply dam, cutting the winter's wood supply, and so on.

APPALACHIAN FOREST EXPERIMENT STATION

General

The work in November consisted largely of report writing and computation for current projects. With Miss Stabler's able assistance the work on the southern white cedar, chestnut replacement, spruce type regeneration, and fire damage projects was materially advanced. At the invitation of the Southern Lumberman, Korstian prepared a paper, "The Tragedy of the Chestnut," which has been sent off for the Christmas issue of that journal.

Mr. F. V. Dunham, an agent of the Southern Pine Association, was a visitor. Mr. Dunham some years ago prepared for the association an estimate of the duration of the cut of southern pine, and he is now engaged in a survey to enable a revision of the previous estimate. Mr. G. C. Morbeck, of the Forest Products Laboratory, spent a few hours at the station, and Mr. George L. Wood, of the R. E. Wood Lumber Company of Baltimore, called to talk over the plans for the Forest Research Council. Another visitor was Mr. Ricardo Roderiguez of Mexico. Mr. Roderiguez spent considerable time in and around Asheville and had frequent conferences with the members of the station staff and with Supervisor Rhoades, as a result of which he has prepared a detailed report for his government. With Supervisor Rhoades he had a day's practical experience on the fire line. Mr. Roderiguez' long stay in the United States, during which he has studied various phases of forestry and logging, is to be terminated with a visit to the Southern Station, after which he will return to Mexico with the hope of entering investigative work with the Mexican forest service.

Study of Methods of Cutting and Natural Reproduction in Hardwood Forests (Mc-2)

Korstian and Reineke finished the season's field work on the study of germination and storage of acorns. Evidence that animals destroy great quantities of acorns which would otherwise be available for reproduction was furnished by the prompt and complete disappearance of the acorns which had been left in unscreened control plots. The screening had been done to keep out mice, squirrels, chipmunks, etc., but all signs indicated that the destruction of the unscreened acorns was by deer. In 85 seed spots of red and European turkey oak and walnut, tests were made of pine tar and lime as rodent deterrents.

Incidental to the oak work, a marked difference in oil content as between the red and the white oaks was found by Korstian. At the time of falling, the acorns of the red oak group were found to have a high content of seed oil, while those of the white oak group contained very little oil but a large amount of water. What relation this bears to the difference in time of germination of white and red oaks is not yet certain. It will probably be desirable, with reference to germination, to carry on at some later time a further analysis of the extractives.

Haasis spent about a week on the Shenandoah National Forest during the cutting operations on the permanent sample plots established last summer near Liberty Furnace, Va., for this study and for the Study of Thinnings in Second-Growth Stands (Mt-2). On one of these plots there has been made a combined stavewood and fuelwood sale, the fuelwood operator taking all the designated timber that the other man did not want. On the other two, fuelwood sales have been made, giving a chance for very close utilization. The stavewood brings $1 a cord on the stump, the fuelwood only 25 cents. With the help part of the time of the Supervisor and the Ranger, height measurements were made of 220 standing tagged trees; and measurements of height, diameter at breast height, and middle diameter of 60 felled trees.

Publications

C. F. Korstian - "Density of cell sap in relation to environmental conditions in the Wasatch Mountains of Utah." Journal of Agricultural Research 28: 845-907.

"Growth on cut-over and virgin western yellow pine lands in central Idaho." Journal of Agricultural Research 28: 1139-1148.

PACIFIC NORTHWEST FOREST EXPERIMENT STATION

The search for office quarters begun last month was concluded early in November by leasing four small rooms in the Lewis Building. This is a substantial office building in a central location, about a half mile from the post office, where the District office is. Since the furniture ordered weeks before had not come, it was necessary to borrow from the District office chairs and tables to serve our urgent needs. The complete files and library at Wind River and a little furniture from there were brought down in two truck loads, 65 miles.

As soon as this equipment was in place, the force came in from the field to get down to the winter's work. Isaac was transferred to Portland from Wind River November 15, McArdle and his two field assistants gave up field work for the season November 21, and Simson came in on detail from Wind River December 2.

Mrs. Ethel Wilson (formerly of D-1) was employed as a temporary to assist in the stenographic work while Miss Wertz is devoting her time to organizing the files, etc. The latter has the big task of going through the ten years of Wind River files, throwing away the inconsequential stuff and retaining the remainder, and then supplementing that with whatever the Experiment Station files should have from the District files. We propose building a "compilation file" directly into the "Investigative" portion of the live manuscript files. This will include everything that should be preserved that cannot be placed in the Library. Organization of the station library must wait until the files are in shape.

A number of letters and news notes were sent out regarding the new office location of the station. Already a number of callers have found us out and a number of interesting interviews had.

November 21 the Director attended the Fourth Annual Forestry Conference under the auspices of the Seattle Chamber of Commerce in Seattle. A resolution favorable to this Forest Experiment Station was passed by the conference. While there, the Director took up with the local weather bureau official, Mr. Sommers (as he also took up with Meteorologist Wells in Portland), the matter of increasing the number of cooperative stations in the forested part of the State, so that our knowledge of the climatic factors in all the forest zones might be augmented.

The Douglas fir yield study crew had a wet time for two weeks but accomplished considerable computing on the worst days. They got 71 plots on 10 different tracts during the month. A Monroe electric calculating machine has been purchased and the field assistants have been retained temporarily to start the working up of basal areas, height-diameter curves, etc.

At the Wind River field station the weather was very unfavorable for field work. Isaac did a little work in the arboretum, but prior to coming to Portland was chiefly engaged on office work and making preparations for moving. Simson completed wiring the station buildings and worked on the hydro-electric plant. It is now in operation. The self-recording instruments were dismantled for the winter; during the next few months rangers will keep the "Cooperative Observer's" record of precipitation, wind movement, and temperature

Of interest to all foresters in the Northwest is the announcement made by the Weyerhaeuser Timber Company that there was being incorporated the Weyerhaeuser Logged-off Land Company to take in hand the cut-over lands of the parent company, dispose of them, or put them to the best use. Just what change in land policy by the Weyerhaeusers will result is not apparent yet. It is hoped that it is a definite conscious step toward holding logged-off lands for a second crop and logging with a view to natural regeneration.

MANUSCRIPT NEWS NOTES

District 2

Production, Extraction, and Germination of Lodgepole Pine Seed. C. G. Bates (revised).

Relation of Grazing to Yellow Pine Reproduction. (Black Hills and Harney.) Fred R. Johnson.

Lake States

Reforestation - What is the Answer in the Lake States? J. Kittredge, Jr. (To Lumber World Review, Nov. 10, 1924).

Southern

The Work of the Southern Forest Experiment Station. R. D. Forbes. Address before North Carolina Pine Association.

Some Rambling Advice to Possible Foresters. R. D. Forbes. (Cypress Knee).

Results of Examinations of the Florida Plots. G. B. Shivery. (Progress Report).

Report on Establishment of Natural Reproduction Plots at Urania, La. W. R. B. Hine. (Progress Report).

Pacific Northwest

Preliminary Study of Noble Fir. E. J. Hanzlik. (To Journal of Agricultural Research).

Effect of Heat on Fir Seeds. J. V. Hofmann. (Jour. Agr. Res.).

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Wackerman, A. E. Growth of Grayling Pine. Journal Forestry. November, 1924.

Larsen, J. A. Waste Land Turned into Forests. American Scandinavian Review. Sept., 1924.

Weidman, R. H. Forest Experiments in Idaho. Timberman. Sept., 1924.

Bibliography on Farm Forestry. H. E. Stockbridge.

Bibliography on Thinning. H. E. Stockbridge.

Munns, E. N. Douglas Fir Regeneration: A Review. Indian Forester, Sept.,1924.

Hadley, E. W. Growth and Regeneration of the Pine Forests of California: A Review. Indian Forester, Sept., 1924.

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